Public Works (1903) Department.

G.O., No. 446 I

DATED 24 April **1903**.

[Despatch Abstract.]

<u>Periyar Project</u>

Pros: Revenue Deptt, passing orders on memo received from certain purchasers of waste lands in the ____ bringing to notice their difficulties ~~[illegible]~~ in bringing their lands under cultivation, Commd to the officers concerned.

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PW-C-332

Government {1903} of Madras.

REVENUE.

Wt office to register & return [illegible] 28/3/03

Recd. } 30– 3– } 1903. *Enclosures*

Regd. } *Spare copies*

G.O., No. 120, 7th February 1903.

FEBRUARY.

B.
Order No. 446 d/ 24th April 1903

Communicated to the officers concerned for information.

DESPATCHED 24 APR. 1903

To. The Chief Engr for Irrign ✓
S. E. 6th Circle ✓

Done

— Periyar Project

Sd.
31.3.03

Passing orders on memorials received from certain purchasers of waste lands under the — bringing to notice certain difficulties experienced by them in bringing their lands under cultivation.

2 copies to [illegible]

Reg 9 3/4

GOVERNMENT OF MADRAS.

REVENUE DEPARTMENT.

Read—the following Proceedings of the Board of Revenue (Revenue Settlement, Land Records and Agriculture), Mis. No. 6660, dated 13th November 1902 :—

The Hon'ble Mr. J. N. Atkinson, I.C.S.

Read—again Board's Proceedings, Mis. No. 2715, dated 2nd June 1900, referring to the Collector of Madura, for report, endorsement of Government, Revenue Department, R. No. 965, dated 18th May 1900, forwarding for report a memorial from certain purchasers of waste lands commanded by the Periyár Project.

Read—again also Board's Proceedings, Mis. No. 5641, dated 23rd October 1900, referring to the Collector of Madura, in continuation of Board's Proceedings, No. 2715, dated 2nd June 1900, for remarks, in consultation with the Public Works Department, endorsement from Government, Revenue Department, R. No. 1831, dated 11th October 1900, forwarding a second memorial from certain purchasers of waste lands under the Periyár Project.

Read—again also the following Board's Proceedings, Mis. No. 3831, dated 30th July 1901 :—

Read—the following letter from J. A. CUMMING, Esq., I.C.S., Collector of Madura, to the Secretary to the Commissioner of Revenue Settlement and Director of the Department, of Land Records and Agriculture, dated 19th July 1901, R. Dis. No. 535-Rev. :—

In reply to Board's Proceedings, Mis. No. 2715, dated 2nd June 1900, and Mis. No. 5641, dated 23rd October 1900, I have the honour to report on the two memorials (herewith re-submitted). To a certain extent they cover the same ground, but I shall deal with each separately.

2. In paragraph 2 of the first memorial, petitioners state that, in spite of their best endeavours, they were not able to raise a second crop in fasli 1309 except on an inappreciable extent. The Special Deputy Collector, who has been in charge of the Periyár area for five years, is of opinion that they did not use their best endeavours to raise two crops.

3. Periyár water was let into the main canal on 2nd June 1899, and it was closed on 1st March 1900. Water was therefore available for nine months. The memorialists claim that at least ten months' full supply is required for two crops, but there must be very few places in the Presidency where such a supply is available. In the neighbouring systems of the Cauvery and Tambraparni, where there is a large area of double crop, much less suffices—please see paragraph 4 of Chief Engineer's letter printed in G.O., No. 541, dated 15th August 1899.

4. It is somewhat difficult to deal in detail with the vague statements contained in paragraph 4 of the memorial. I believe cultivators at the tail-end of the system in Mélúr taluk have more reason to complain than petitioners. As a matter of fact, many other cultivators were able to raise two crops. It must be borne in mind that the leading memorialists are not practical agriculturists or even resident proprietors. Their lands are cultivated by tenants or looked after by superintendents. These cannot be expected to show the same energy as the actual owners, and I am inclined to think this must be held to account for their failure.

5. The statement in paragraph 4 is not corroborated by facts, since other ryots succeeded in raising two good crops. In many cases I have seen these waste lands lowered 5 and even 8 feet, so that the whole of the soil was removed. The sub-soil, which is then cultivated, cannot raise a crop unless heavily manured—in fact the outturn on these lands depends as much on the manure as on the water-supply.

6. I would invite a careful perusal of paragraph 5 of the memorial. Therein remission is claimed because the outturn of the first crop was poor and the small area of second crop yielded little or nothing. I think a perusal of this paragraph will convince the Board how utterly unreasonable the memorialists are. Every failure is ascribed to deficiency of water, even failure of first crop. Now whatever opinion may be held regarding the sufficiency of the Periyár supply for two crops, there can be no doubt that there is an ample and unfailing supply for one. It is evident, therefore, that failure was due to other causes than want of water.

7. As to paragraph 6, there was no famine in this district in fasli 1309. One kist was suspended in certain villages in Mélúr outside the Periyár zone, and no other exceptional relief of any kind was granted. The general belief is that but for the protection of the Periyár, further relief would have been called for. I consider the claim put forward in this paragraph comes with an illgrace from memorialists, who by their own statement are men of capital who have embarked in a speculation. It is not such as they that require exceptional treatment in a year of scarcity.

8. Water was supplied for over nine months and so far as water-supply was concerned, it was quite possible for them to raise two crops. Two crops have actually been raised on a considerable area by men who were cultivating their own lands and had no better supply of water than memorialists. It is largely a matter of skill in agriculture. There are difficulties in the way, but these are experienced by all pioneers and have been overcome by others. The labour supply is bad. I have heard of dishonest superintendents and absconding coolies, who have victimised absentee landowners. Manure, which is of vital importance, is in places difficult to procure. Roads are wanted to open up the area, and I do not think as much has been done in this direction as might have been done. But it is not just to blame the water-supply for all shortcomings.

9. I do not, therefore, consider that any case for remission of second-crop charge in fasli 1309 is made out. The other prayers in the first memorial are repeated in the second and will be dealt with later on.

10. The second memorial deals with fasli 1310, and may be divided into four portions.

11. Paragraphs 3 to 6 complain of the supply in fasli 1310. There was some discontent in the beginning of the fasli, as will be seen from paragraph 7 of the Deputy Collector's quarterly report in Board's Proceedings, No. 395, dated 22nd August 1900. That is not uncommon when water is first let down and there is a general scramble for it. It is not unknown even in such favoured districts as Gódávari and Kistna.

12. It was notified that the head sluice would be opened on 15th May, and a remark was added that "water will be sent down as soon after this date *as supplies permit*". It was tom-tommed throughout the Periyár area that a week's notice would be given of the actual date. Water was actually let down on June 7th, and the Executive Engineer considers that water could not possibly have been let down sooner than June 5th.

13. The summer showers were not unusually scanty, as 5·68 and 5·05 of rain were gauged in Madura in April and May. In June and July, however, only ·32 and 1·56 were gauged.

14. Those who sowed seedlings too soon could not have heard the Executive Engineer's notice and probably petitioners who do not reside in the Periyár area were in that number. To guard against such accidents, the Executive Engineer has erected 100 notice-boards, on which information regarding the Periyár supply will be posted.

15. The memorialists' lands are under three branch channels. The Executive Engineer gives the following statement of the duty of water in these channels at various periods :—

—	Week ending				
	22nd June.	30th June.	28th July.	18th Aug.	15th Sept.
1	2	3	4	5	6
B-3	21	28	17	27	108
B-4	10	15	19	32	98
B-5	21	27	21	28	50

This statement does not bear out the complaint of generally scanty supply as the duty is exceedingly low, though under all systems there is difficulty at the tail-end at the beginning.

16. In the immediate neighbourhood of petitioners' villages, a large area of double crop was raised. It is interesting to note that the Executive Engineer himself raised two crops experimentally under B-4. Some of the petitioners' lands are saline and will probably never yield two crops unless specially treated. It may be assumed that the purchasers knew this and regulated the price accordingly.

17. There is no reason to remit the second-crop assessment for fasli 1310. Special concessions have already been granted for waste lands sold, and there is no need to go further.

18. Paragraphs 7 and 8 deal with the supply generally available and the uncertainty of the date of opening. But as 29th May is the earliest and 7th June the latest day on which the head sluice has been opened, there is not a wide variation. It is impossible to fix it to a day and, so far as I know, is nowhere attempted. Since the system was opened, the duration of the flow in the main canal has been as follows :—

	Months.	Days.
1896–97	8	24
1897–98	9	1
1898–99	10	1
1899–1900	9	17
1900–1901	9	18

which gives an average of over nine months.

19. Paragraphs 9 to 16 attack a circular issued by the Executive Engineer regarding double-crop cultivation. The Executive Engineer reports : " All I can say is during last season I have practically accomplished what the petitioners declare to be an impossibility. There are cultivators within the Periyár area, who follow practically the same system as that advocated in my notice and they have been successful. Further a very close approximation to the system sketched in my notice obtains in other parts of this district ".

20. As to paragraphs 17, 18 and 19, there is no doubt that the waste lands sold do require a great deal of manure, and that the yield depends on the quality and quantity of manure applied. Generally speaking, the local supply is insufficient and manure must be imported into the Periyár area. Attempts were made by the District Forest-officer to grow leaf manure in the Palamedu forests, but these failed and the District Forest-officer considers they are never likely to be a financial success in the forests. The Executive Engineer has, however, taken up the matter and is growing avaram

wherever it can be grown. He has taken up 100 acres for this purpose. The supply of manure must be worked out by the cultivators themselves, and if they would follow the Executive Engineer's example, it would be a step in the right direction.

21. Some of petitioners' lands are saline. The Executive Engineer has forwarded some samples to the Agricultural Chemist with the Government of India and asked his advice as to the best means of getting rid of the noxious matter. Whether the ryots will be prepared to adopt the advice remains to be seen.

22. One thing that is frequently forgotten now is that the levy of double-crop assessment was considered essential in working out the financial forecast of the project. The prospects were none too rosy, and but for this double-crop assessment, it is doubtful if the project would have been sanctioned.

23. I am not prepared to recommend that any of the requests as framed be granted, but I would urge on the Board's consideration certain proposals made by the Executive Engineer, which will go far to meet such complaints as this. These are to divide the system into double-crop and single-crop areas.

24. It is recognised in practice in the Gódávari and Kistna deltas that lands nearer the head of a channel have a preferential claim to lands lower down. I would put the same principle into force throughout the Periyár area. It may be objected to this that Mélúr taluk, which the Periyár project was to some extent designed to protect, will suffer thereby. It is true that if this principle is followed, a great portion of the area in Mélúr will be reduced to single crop. Single crop, however, will be quite sufficient to protect Mélúr from famine, more especially as it will set free a large quantity of water which can be more economically utilized in raising second crop higher up the system but still within easy reach of Mélúr—say 20 or 30 miles. The present system of distribution is anything but economical, as water has to be sent all over the Periyár area for second crop frequently having a long course to run for a small area to irrigate. The loss by evaporation and absorption must be great. If this supply were concentrated higher up, a much larger area could be irrigated with second crop with the same quantity of water, the supply would be surer and better under control. From what I have gathered from various sources, I am sure that such a course would commend itself to the owners of land under the system and remove a certain amount of discontent.

25. The most practical way of giving effect to this would be to fix a point in each channel, above which the land would continue to be double crop and below which it would be reduced to single crop. The Executive Engineer anticipates no difficulty in doing so. It would be incumbent on him to certify that above this point he can guarantee water for two crops. The single-crop area would be liable to be raised to the higher class, should it be found that double crop was raised for several years in succession and a sufficient supply for two crops could be guaranteed.

26. I consider that these proposals are sound from the point of view both of Government and the ryot, and are well suited to such a system as the Periyár, where we must learn from experience what the system is actually capable of irrigating.

Enclosure.

From the Executive Engineer, Madura Division, to the Collector of Madura, dated 23rd April 1901, No. 635-M.

Referring to your endorsement No. N.R.O.C. 562-B. & G. of 1900, dated 27th October 1900, I have the honour to make the following remarks on the petition.

2. The petitioners' lands lie in the following villages and are commanded by the channel named against each group :—

Village	Channel	Village	Channel
1. Vilangudy	B-3.	7. Tamaraipatti	B-9.
2. Kovilpappagudi	B-3.	8. Kalikappan	B-9.
3. Pothumbu	B-4.	9. Rajagambiram	B-9.
4. Mulakaranai	B-4.	10. Uthangudi	B-9.
5. Sitayanery	B-4.	11. Pudupatti	B-9.
6. Tathaneri	B-4.		

In these villages the approximate areas of waste land sold are as follows :—

	ACS.
1. Vilangudy	120
2. Kovilpappagudi	250
3. Pothumbu	330
4. Mulakaranai	240
5. Sitayanery	55
6. Tathaneri	40
7. Tamaraipatti	900
8. Kalikappan	280
9. Rajagambiram	210
10. Uthangudi	80
11. Pudupatti	110
Total ...	2,615

Of these lands those in villages numbered 2, 4, 5 and 6 are almost all saline. In Nos. 1 and 3 about 40 and 150 acres, respectively, are saline.

Some of the petitioners bought their land in auction and, to some, land was assigned under darkhast rules.

3. The petition may be divided and summarised as follows :—

A. Paragraphs 3—6.—Complaints regarding supply in 1310.

B. Paragraphs 7—8.—General statement as to alleged insufficiency of supply for double crop.

C. Paragraphs 9—16.—A refutation of a recommendation published in the District Gazette by the undersigned.

D. Paragraphs 17, 18 *and* 19.—Certain statements.

E. Petitioners' prayer.

4. I will now take up these points *seriatim.*

5. *A.* The petitioners start with a quotation which is incorrect. The notice stated that the head sluice would be opened on 15th May 1900 and in the remarks column it was stated "Water will be sent down *as soon after this date as supplies permit*". This, it will be observed, does bear not the interpretation put upon the perverted quotation by the petitioners.

Further it must be borne in mind that at the close of the irrigation season 1899–1900 I caused notice to the following effect to be tom-tommed, viz., that cultivation during the closure was not recommended owing to insufficiency of water and that a week's notice of the water's advent would be given. This was tom-tommed throughout the Periyár area. On 1st June, I decided on opening on 7th June, and gave notice to that effect. I can prove by figures and facts that it was only possible to have opened on 5th June 1900, and I consider that an error of 48 hours in a calculation of that kind involving assumptions as regarding rainfall is a trifling matter.

It is probable that the petitioners were not informed of the tom-tom notices by their tenants. In fact one or two have told me so. To as far as possible obviate this I have erected 100 irrigation notice-boards within the Periyár area on which notices are now posted. As regards the complaint of insufficiency of supply after the opening I give the duty of water under the three channels referred to for several weeks.

Channel.	Week ending				
	22nd June.	30th June.	28th July.	18th Aug.	15th Sep.
1	2	3	4	5	6
B-3	21	28	17	27	108
B-4	10	15	17	32	98
B-5	21	27	21	28	50

I consider that this refutes the general complaint of insufficiency of supply.

The petitioners are quite right when they state that in certain places supply was late, but this applies to certain land peculiarly situated and to which I shall allude hereafter. Further they state that many were unable to raise a short crop. As regards a comparatively small area that is so. The area is that alluded to above where supply was late and will, in my opinion, probably ever be so unless the storage capacity of the lake is increased or another

reservoir is provided. But generally speaking it is not the case with the land under the three channels. In the immediate vicinity of the villages named a large area of short and long crops was raised and I raised two crops under B-4. A number of the petitioners did not raise a short crop because their land is saline and will not produce two crops. A number on account of the inaptitude of their tenants and want of labour and as I have said before there are certain places (the area is not large) where some of the petitioners could not be expected to raise two crops.

6. *B.* This is more or less mixed up with *C*, but contains two statements which are not exactly accurate. During the years to which the petitioners allude the earliest date of opening at Thekady has been 29th May, and the latest 7th June or a maximum fluctuation of 9 days. From these dates a fairly accurate assumption may be made of the date about which water may be expected. I have no doubt that after a few more years an even more accurate assumption will be possible. As regards the duration of flow in the main canal it was as follows :—

	Months.	Days.
First year ...	8	24
Second year ...	9	1
Third ,, ...	10	1
Fourth ,, ...	9	17
Fifth ,, ...	9	18

It must not be supposed that I mean to imply that the canal was running full all that time. For instance, during the last month (March 1901) the supply has been more than enough for the area under cultivation and only a comparatively small length of the canal was in use; but because only this small length was in use it does not follow that water was not available for other places. As a matter of fact it was available, but there were no agricultural operations requiring supply from the lake.

7. *C.* As regards the petitioners' arguments on this point all I can say is that during the last season I have accomplished what the petitioners declare to be an impossibility. There are cultivators within the Periyár area who follow practically the same system as that advocated in my notice and they have been successful. Further a very close approximation to the system sketched in my notice obtains in other parts of this district.

8. *D. Paragraph* 17.—From the results of my experiments I find that the yield depends upon the quality and quantity of manure applied to the land always provided of course that there is no supersaturation which will reduce yield by as much as 25 per cent. As regards the supply of manure there is no doubt that generally speaking at present the local supply is insufficient. But in some villages I have observed valuable manure not being utilized what was badly wanted in others. This is a matter which will rectify itself in course of time. With a view to, in some small measure, increase the supply, I am arranging wherever possible to plant avarai and I think that the ryots might also help themselves in this matter by planting it or other plants out on suitable places. As regards the saline land there are several well-known methods of getting rid of the noxious matter. But no one appears to be anxious to try them. I do not consider that the purchasers of saline waste land deserve any special consideration. They bought cheap knowing the nature of the soil and must stand by the results of their ignorance or want of judgment as the case may be. They should receive exactly the same treatment as others. As, however, it is in the interests of both Government and ryots that saline lands should be properly cultivated, I have forwarded several specimens for analysis to the Agricultural Chemist to the Government of India and have asked his opinion and help in the matter. When the results are received and his recommendations are made they will be published locally for information and I will endeavour to persuade some of the richer proprietors to give them a trial.

9. *Paragraph* 18.—Needs no comment from me. I may however say that I know some people who would not, I think, raise or attempt to raise two crops were it not for the double-crop assessment.

10. *Paragraph* 19.—I agree with the petitioners as regards certain waste lands.

11. *E. I am very strongly of opinion that as a body the petitioners' prayer should be rejected.* But as regards certain holdings to which I have alluded in general terms and which represents but a small percentage of the whole, double-crop assessment should not be levied. I recommend that the land commanded by the Periyar system should be divided into two classes. The first, double-crop land, *i.e.*, land upon which the Executive Engineer is in a position to certify two crops can be raised. This could be assessed as at present. The second class would be the remainder of the ayacut and should be assessed as single crop, but should be liable to be raised to the first class when the Executive Engineer is in a position to certify that two-crops can be raised. Double-crop assessment should, however, be levied whenever two crops are raised.

The proposed classification could be made by fixing a point on each channel above which the lands would be first class and below which it would be second class. The raising of any

land from second class to first would only as a rule be made after some years' experience and generally after the raising of two crops for two or three years in succession. It should be allowable to sell waste land under either class.

So far as the Public Works Department is concerned there would be no great difficulty in thus classifying the ayacut.

12. I must apologise for delaying this reply to your reference. The reason for the delay was to ascertain the results of the experiments referred to and without which results I should have been unable to make the definite statement contained in paragraph 7.

Resolution—Mis. No. 3831, dated 30th July 1901.

Forwarded to the Chief Engineer for Irrigation for favour of early remarks on the suggestions contained in paragraphs 24 and 25 of the Collector's report.

(True Extract.)

(Signed) R. V. SRINIVASIAR,
Secretary.

To the Chief Engineer for Irrigation, with Collector's letter and its enclosures, in original, to be returned.

Read—also the following letter from Colonel A. W. SMART, R.E., Chief Engineer for Irrigation, to the Secretary to the Commissioner of Revenue Settlement and Director of the Department of Land Records and Agriculture, dated 8th July 1902, No. 217 M. :—

With reference to Proceedings of the Board of Revenue (Revenue Settlement, Land Records and Agriculture), Mis. No. 3831, dated 30th July 1901, I have the honour to forward herewith copy of letter No. 533-M.D., dated 19th April 1902, from the Superintending Engineer, VI Circle, containing a report from the Executive Engineer, Madura, and its enclosures, with an expression of concurrence in the opinion of the Executive Engineer that the petitioners' prayer may not be granted.

It is quite possible that some of the petitioners did suffer to some extent from an inadequate early supply on account of the situation of their lands, but they are few in number. Collectively they have no just claim for remission. The general question of the areas that should be classed as double consolidated or as single crop is now under investigation.

With regard to the date for opening the reservoir, it is found that if the level of the water in the lake is 15 feet or less on the sill of the watershed cutting, that the tunnel will only allow of a discharge of 300 to 400 cusecs or about one-half the discharge required to adequately command the lands. The water then takes ten days to get to some of the lower lands and the loss is so great that it is advisable in such cases not to open the reservoir till the burst of the monsoon or at all events till some days after the 1st of June. Under the circumstances, we should leave the local officers to fix the date of opening, year by year, in accordance with the level of the water in the reservoir. It is possible when storage has been increased, as now contemplated, we shall be able to fix the date of opening on the 1st June, but certainly not at an earlier date.

The Collector's letter and its enclosures are returned.

Enclosures.

From the Superintending Engineer, VI Circle, to the Chief Engineer for Irrigation, dated 19th April 1902, No. 533-M.D.

With reference to your memorandum No. VI/43-M.D, dated 9th August 1901, I have the honour to forward herewith a report from the Executive Engineer, No. 634-S.E., dated 23rd October 1901.

With reference to the proposal to fix the 1st June as the date on which the Periyár shall always be opened, I am of opinion that it will be inadvisable to do so. In a large proportion of years this can doubtless be done, but there will be some years, as has been proved, when it will be waste of water to open the sluice on that date. The sluice should be opened not later than 1st June, provided the lake level admits, and this will be the case in most years, but I do not consider it advisable to make a hard and fast rule that the sluice shall be opened on that date.

From the Executive Engineer, Madura Division, to the Superintending Engineer, VI Circle, dated 23rd October 1901, No. 634-S.E.

[*Reference.*—Chief Engineer for Irrigation's Memo. No. VI/43-M.D., dated 9th August 1901.]

In reply to the first point raised by the Chief Engineer, I have the honour to state that I assumed the raising of seedlings during the time the land is being flooded and ploughed, the total time for the raising of the crop being ninety days. As a matter of fact it is not necessary to raise seedlings and just as good a yield can be obtained from broadcast sowing if this method of cultivation is understood. As a practical illustration of what is possible I will state what was actually accomplished by us as an experiment upon one plot of 1·42 acres in Tallakulam village close to Madura during the irrigation season of 1900–1901. On the area mentioned two crops were raised; the first crop was on the ground 144 days from the sowing ot the seeds to the harvest; the second crop was on the ground 188 days from the sowing of the seeds to the harvest. The time occupied in raising the two crops was 262 days or 8·6 months. It will be noticed from the time the crops were on the ground that the first crop exceeded a 90-days' crop by nearly two months and (*a*) 4-months' crop by nearly one month. I argue from this that the recommendation put forward in my notice is a possible and practicable suggestion and that the time given by me for the growing of two crops as named is not too little or long as the margin allowed is in both cases ·4 of a month. The net return on the experiment without reckoning interest on the purchase money was about Rs. 200. The land was highly manured. In another village, Ootakudi, another experiment was tried on newly —converted land in its first season (that in Tollakulam village was in its third season) and the land was intentionally *not highly manured.* It was in fact very slightly manured. The total yield for the two crops was only about 750 measures. This was due chiefly to want of manure but there was another factor, viz., supersaturation. I have seen the results of Mr. Miller's experiments at Sivaganga. These confirm what is generally known, viz., that the yield is generally speaking proportionate to the amount of manure employed. The fact that supersaturation diminishes yield is not generally speaking sufficiently comprehended by the ordinary cultivator. The two experiments I have mentioned show that it is possible to raise two crops within the time stated by me, and they also show what was generally known before, viz., that *cœteris paribus* the yield is proportionate to the amount of manure used.

2. In paragraph 3 of the memorandum, the Chief Engineer makes a presumption as to the months when all the lands are under cultivation. Up to date experience shows that the largest area under cultivation at one time occurs in December. In August there is a considerable area but not so large. The terms first and second crops are likely to be misleading. As used by me the terms have no connection with the fasli but refer to the irrigation season only. It might perhaps save confusion if the terms Kodai and Kalam were used. The former term is applicable to the summer crop and the latter to the north-east monsoon crop.

It might be borne in mind that the ayacut area of the project receives the major portion of its rainfall during the north-east monsoon and that the reservoir receives the major portion of its supply during the south-west monsoon. The south-west monsoon practically speaking does not affect the ayacut, any rainfall that is received during the south-west monsoon period being due to local storms. From this it is evident that the period of maximum demand upon the Periyár water will fall in August. In the event of a failure of the north-east monsoon another period of maximum demand will occur towards the close of the season for the final watering. This in 1899–1900 was met by tatiling. The lake was about 136 at the beginning of December 1899 and was run down to 120·25 at the time when no more water was required for irrigation. Water was supplied for municipal purposes after the irrigation demand ceased.

3. In paragraph 2 of the memorandum under reply is a statement regarding an alleged loss of water last year and this. I will deal with this separately. The remainder of the paragraph I can best answer by stating my views on the way the project should be worked.

4. I consider that if the tanks are used to store Periyár water in, the tanks will fail to exercise their *legitimate function* of storing rain water either in part or wholly according to the amount of Periyár water stored in them. The Chief Engineer has repeatedly laid great stress

on the fact that we cannot afford to lose any of the rainfall and he therefore some years ago advocated the retention of a much larger number of tanks than was originally proposed. I entirely agree with this view and would remark that instead of filling these rainfed tanks with Periyár water to avoid loss over the escape of the reservoir the proper course in my opinion is to increase the storage capacity of the project. Were this done we could utilize every drop of water from both the reservoir and the rainfall on the ayacut area and increase the irrigated area.

5. The total quantity of Periyár water that can be drawn off is limited by the discharging capacity of the tunnel. This is diminished before it reaches Peranai. Assuming for the sake of argument that the loss is 80 cusecs, it is evident that in the absence of local storms in June, July and August the irrigable area for kodai crops is fixed by the duty obtainable during the period of maximum demand and will amount, so far as our experience up to date goes, to somewhere about 50,000 acres. This area would be larger but for the fact that the mamool wet has not been assessed as double crop and the ryots in many cases refuse to raise kodai crops unless they receive more water than they really require. We have to give in or sacrifice revenue. They have got us in a corner in this matter and not only know it but make use of their knowledge.

6. As to the irregularity and delay in opening the sluice, I much regret that the Chief Engineer has taken the view that much loss has occurred. In 1900 we had the following problem to deal with and certain facts to aid in solving it. The facts are—

(*a*) The discharge from the lake could not apparently be maintained so as to give 1·5′ on the measuring weir after the lake had fallen to 121·51—*vide* readings 4th March 1898 and 2nd September 1899.

(*b*) With a smaller depth on the measuring weir that 1·5 the water takes about ten days to reach Peranai at the time the sluice is usually opened and the flow in the canal is so small as to be practically useless.

(*c*) The monsoon was expected to be late and the run off from the catchment of the reservoir is not appreciable until the monsoon has well established itself.

(*d*) The lake level was 122·65 on June 1st.

The problem was on what date could the sluice be opened and a steady supply of sufficient volume given. I calculated from the tabulated capacities of the lake that we could open on the 7th with 2′ on the measuring weir. Knowing how these capacities are arrived at I took the precaution of ordering the sluice Superintendent to wire gauge readings daily. The sluice was opened in the evening of the 7th. On the morning of the 8th the sluice Superintendent wired the readings and from the fall it was at once apparent that a depth of 2′ could not be maintained for any length of time. I take it that it may be assumed that any cultivator would prefer a smaller supply gradually increasing to a larger supply sharply diminishing and again increasing. On this assumption which seems to me common sense I at once reduced the depth on the weir to 1·5′ and kept it at that until the lake showed signs of rising. A reference to the lake register will show that the depth on the weir was increased as the lake rose until a depth of 2′ was attained which was all that was required for the land under irrigation, until the demand increased when the depth was increased. A reference to the lake register will show that presuming a steady fall as given by a depth of 1·5 on the weir, the point at which a depth 1·5 cannot be maintained would have been reached on June 13th had the lake not risen on the 12th. It is therefore evident that the sluice might have been opened on the 5th and a steady and increasing supply maintained. No man can tell the exact date when rain will fall and I maintain that an error of 48 hours is not much for any prophet under the circumstances.

7. As regards 1901 the lake level when the sluice was closed on 26th March 1901 was 140·7. The people were promised water in the canal on June 1st and they had it. The sluice was opened on May 26th, it was therefore shut for 60 days. We must have some time to do repairs and work in not only on the channels but also on the Surulyur anicuts, many of which are ancient structures not designed or intended to bear the wear and tear of water flowing over them for any lengthened period. The sluice was opened as early as possible taking all circumstances into consideration. It must also be borne in mind that crops were not entirely harvested at the head of the system until April 1901. The depth on the weir was 3–3·1′, and the supply more than sufficient to satisfy the demand. Had we opened appreciably earlier the work in hand could not have been finished. Taking the two years together I absolutely fail to see how the fact that the lake surplused can be laid to my charge. The lake has surplused in previous years and with the present means of discharge will probably surplus again. I think I have shown conclusively that I could not possibly have opened earlier than 5th June 1900 in that year. As for 1901 the sluice was opened some days before the date proposed by the Chief Engineer. With all due deference I really cannot see how I can be properly blamed for the lake surplusing as in the year 1900 the monsoon supply was more than usually copious and in 1901 it fell on a high lake.

8. As regards the proposal to fix a date, I consider it suicidal. The date of opening must be arranged with reference to the supply available. After all the fluctuation in the date of opening is covered by 264 hours and I believe that people in the Cauvery and Kistna have a rather wider range for receipt of supply at the beginning of the season. The date of opening will, in course of time, practically fix itself on the doctrine of averages. I can see no adequate reason for putting ourselves voluntarily into a position which we should regret were circumstances similar to those of 1900 to recur. Had the sluice been opened on June 1st with 1·5 on the weir, there would have been a period of five days during which the supply would have been the merest trickle compared to the demand and the damage to the cultivation would have been great. I am very strongly of opinion that no date should be fixed.

9. As regards the proposals in paragraphs 24 and 25 of the Collector's letter, I may mention that they are mine. What I propose to do is to fix a point on each branch channel and to class the land irrigated from sluices above this point as double crop and the land irrigated from sluices below the point as single crop. We have not got sufficient supply to give all the ayacut enough water for two crops. There are now scattered blocks of land classed as double crop and much water is wasted in attempting to supply them. The cultivators of such blocks have genuine cause for complaint. Were such blocks to be eliminated from the double-crop area we could concentrate the double-crop area with much economy of water and consequent increase in area. I have explained before and elsewhere that the supply is not sufficient for the whole area commanded from June to September. In view of this fact some action of the kind recommended is, in my opinion, necessary. When fixing the points on each channel great care must be exercised. I am and have been considering the question and hope to be ready with a definite proposal before long.

10. In conclusion, I enclose herewith a copy of my remarks on the petition. These were sent to the Collector and it seems that he agrees with me.

Note on the methods of cultivation under the Periyár channels.

In most villages where double crops are raised, the practice in vogue is to raise two crops of vellakar or sengarkar. These take 4½ months from the time the seedlings are put out until the harvest is reaped. Either species is used according to the prejudice prevailing locally. Under one channel the cultivators grow in the early part of the season one of the kar crops previously mentioned and follow it with chirumanaian which is a 5-month crop. In two villages the people have begun to adopt the practice of growing first a 3-month crop and second a 5-month crop which is generally chirumanian.

2. In places where only one crop is raised, the following species are found :—

Chirumanian (which is a 5-month crop).	Mulahi chamba.
Jeeraga chamba.	Sirumulahi chamba.
Irku chamba.	Naryan chamba.
Vellai chamba.	

all of which are 6-month crops.

The first-named species is only raised in places where supply is at all scanty at times and is not much in vogue for a single crop. Of the 6-month crops, vellai and jeeraga chamba are most generally used. They are often twice transplanted with the object of increasing the yield.

3. Under Chittanai the cultivators grow both a 4½-month and a 6-month crop. The Tenkarai channel is not closed and they use the summer freshes in the river.

4. Seedlings are raised before the advent of Periyár water under tanks and wells and in villages bordering on the river by baling from pot holes sunk in the river-bed. Where the 3-month crop is raised broadcast sowing is resorted to and it is also used in a few places where a 4½-month crop is raised. The local cultivators are not used to this method and only after the lapse of some time will it be more generally adopted.

5. In some places notably under Vadagarai tank and channels, the cultivators flood their fields for weeks before transplanting. Fields have been known to be for more than two months under water before transplantation was begun. The idea is that the quantity of manure required is reduced if this is done. The real effect is to reduce the yield of the crop.

6. The foregoing is a short resumé of the chief prevailing and most important practices in agriculture under the Periyár channels. The real difficulty the cultivators have to contend against is the difficulty in obtaining manure and with many, if not most, the want of capital wherewith to purchase a sufficient quantity. Labour is ample in many villages; but scanty at present in the neighbourhood of lands recently brought under wet cultivation.

7. The labour difficulty is one which will solve itself as the population of the ayacut becomes more prosperous and propagates more freely with a better chance of the children surviving infantile diseases owing to the increased prosperity of the parents.

The manure difficulty and want of capital, in my opinion, requires some consideration and aid from Government. As far as the Public Works Department is concerned, we are doing what we can to plant up canal banks and tank-bunds with avarai and such like manuring plants. This will aid to a certain extent but not much, and it seems to me that if wood-fuel were made cheaper the cultivators might use the cow-dung for manure and not for fuel. The stall feeding of cattle might also be encouraged. If the people had more capital, they would undoubtedly bring more green manure from a distance. I think that the establishment of an agricultural bank would aid them greatly. At present the people pay from 12 to 18 per cent. for borrowed money and 18 per cent. may be taken as an all-round prevailing rate of interest. The crushing burden of such a rate of interest needs no demonstration and I think that it can only be lightened by the establishment of an agricultural bank under Government auspices working on commercial principles.

8. I may mention as an interesting fact that it has come to my knowledge that in a number of cases the waste lands under the channels have been occupied by families now living in neighbouring villages and that their indebtedness dates from the famine of 1877. I mention this as it seems to me that these people have a certain moral claim for assistance on this account as well as on the broader grounds of expediency.

Madura,
23rd October 1901.

(Signed) H. T. KEELING,
Engineer.

Read—again the following Reference from the Board of Revenue (Revenue Settlement, Land Records and Agriculture), No. 1562, dated 23rd July 1902 :—

Reference—No. 1562, dated 23rd July 1902.

The memorials contain not only a general prayer for a re-consideration of the principles under which land is to be registered as double crop, but a specific one for the remission of second-crop charge for faslis 1309 and 1310. The papers before the Board do not afford sufficient material for forming an opinion on the latter prayer. It is necessary to know, in respect of the lands belonging to *each* of the memorialists (1) whether a second crop was grown, and if not, whether the omission to grow a second crop was due to neglect on the part of the owner or to failure of water; (2) if a second crop was grown, whether it failed and for what reason; and (3) whether a second crop was raised on adjoining lands by *their* owners, and how such crop fared. The Collector is requested to submit a full report, in the form of a statement, answering the above questions and containing all the facts necessary to enable the Board and Government to form an opinion on the question at issue.

2. This reference should be treated as very urgent and reply submitted without any delay.

Read—also the following letter from A. G. CARDEW, Esq., I.C.S., Collector of Madura, to the Secretary to the Commissioner of Revenue Settlement and Director of the Department of Land Records and Agriculture, dated 16th October 1902, R. Dis. No. 1173-Rev. :—

In reply to the Board's Reference, No. 1562, dated 23rd July 1902, I have the honour to submit herewith a statement showing the extent purchased at the Periyár sale by the signatories to the memorial, the extent of second-crop cultivation raised in faslis 1309 and 1310 and other particulars required by the Board. The Special Deputy Collector, Periyár, states that in faslis 1309 and 1310, there was no deficiency of water-supply in the Periyár channel, that omission to grow second crop was due to neglect on the part of the owners and not to failure of water and that in all the cases in which second crop was raised in the lands of the petitioners as also in the adjoining lands, there was no failure of crop. The Tahsildars of Madura and Mélúr are of the same opinion.

		ACS.
* Fasli 1309	... ...	97·03
„ 1310	... ...	95·94
	Total ...	192·97
† Fasli 1309	... ...	167·53
„ 1310	... ...	211·11
	Total ...	378·64

2. From the statement now submitted, it will be seen that out of 1,204·71 acres purchased by the signatories to the memorial, only 192·97 acres* were cultivated with second crop in the two faslis 1309 and 1310 added together, while second crop was raised on adjoining lands to the extent of 378·64 acres †. Almost all these lands are stated to have yielded.

3. The figures thus supplied seem to prove conclusively that petitioners' failure to raise a larger extent of kodai cultivation was due to their neglect rather than to deficiency in water. It is moreover undesirable that joint petitions should be considered in regard to a question of remission. On such questions, a separate petition from each holder should be insisted on.

The enclosures received with the Board's reference are herewith re-submitted.

Resolution—Mis. No. 6660, dated 13th November 1902.

The Board begs to submit the report called for in Endorsement R. No. 1801-Rev., dated 11th October 1900, on the memorial of certain purchasers of waste lands under the Periyár project.

2. In their first memorial of April 1900, transferred to the Board with endorsement, No. 965, dated 18th May 1900, the memorialists stated that in fasli 1309, they received Periyar water for only 8½ months against the full ten months' supply necessary for rasing two crops in a year. They contended, therefore, that they could not raise a second crop except on a very small extent, and requested that the charge for second crop in that fasli might be remitted. Their second petition of the 4th October contained a similar prayer in regard to fasli 1310.

3. In paragraphs 2—18 of his report, dated 19th July 1901, of which a copy is enclosed, the Collector of Madura deals fully with the allegations of the memorialists. In fasli 1309, the main canal was opened on the 2nd of June 1899 and closed on the 1st March 1900. Water was available for nine months. In the succeeding year, water was let down on the 7th June 1900, and the supply lasted for nine months and eighteen days. The Collector considers that in both the years the supply was sufficient for raising two crops. In his opinion, the failure of the memorialist to raise a second crop was due to various causes, such as, in some cases, the complete removal of the surface soil in lowering the level of the lands for wet cultivation, want of sufficient manure, and non-residence of the purchasers. In proof of this, he points out that there was undoubtedly an ample and unfailing supply for one crop, and that nevertheless according to the admission of the memorialists, the outturn of their first crop was poor.

4. The tabular statement furnished by the Collector shows in detail of fields, the total extent of land purchased by each of the memorialists, and that on which he cultivated a second crop in the two faslis. It will be seen that out of a total area of 1,205 acres held by the memorialists, only 97 acres in one year and 96 acres in the next were under second crop. Of the fields adjoining the memorialists' land, 168 and 211, acres, respectively, were similarly cultivated, while the total second-crop cultivation in the villages amounted to 1,539 and 1,719 acres. This shows that other cultivators were able to raise two crops. The failure of the memorialists cannot therefore be attributed to want of supply. The Collector and the officers of the Public Works Department are of opinion that the memorialists have not made out their claim, and the Board agrees with them.

5. In paragraph 16 of their second memorial, the memorialists' request that the lands irrigated by the Periyár may be transferred to single crop. The question was

fully considered and decided against the memorialists in paragraph 2 of G.O., No. 541, Revenue, dated 15th August 1899. The Board sees no reason to recommend a re-consideration of the order.

6. In this connection, the Collector points out that the present system of distribution of the Periyár water is anything but economical, and that water has to be sent all over the Periyár area for second crop frequently having a long course to run and a small area to irrigate. The loss by evaporation and absorption must therefore be great. By concentrating the supply higher up, a much larger area could be brought under second crop with the same quantity of water, and the supply would be surer and better under control. The Executive Engineer agrees with the Collector, and recommends the division of the lands commanded by the Periyár system into two classes. The first class would consist of land on which the Executive Engineer can certify that two crops can be raised, while the other class would comprise the remainder of the ayacuat and should be assessed as single crop, double-crop assessment being levied whenever two crops are raised. The right should be reserved to Government to re-transfer these lands to double crop, when the Executive Engineer can certify that two crops can be raised. The most practical way to give effect to this revision of classification would, in the Collector's opinion, be to fix a point in each channel above which the land would be double crop and below which it would be reduced to single crop. The Chief Engineer has offered no remarks as to the practicability of this proposal, but states that the general question of the division of the Periyár area into double crop and single crop is under investigation. The result of this investigation will be duly reported to Government.

(True Copies and Extract.)

(Signed) V. K. RAMANUJA CHARI,
Acting Secretary.

To the Secretary to Government, Revenue Department,
with memorials and other enclosures,
in original, to be returned.

Order—No. 120, Revenue, dated 7th February 1903.

Irrigation No. 1.

In two memorials submitted in April and October 1900, respectively, certain purchasers at auction sales by Government of waste lands commanded by the Periyár project in the Madura district made the following requests:—

(i) that the second-crop assessment be remitted in respect of their lands for faslis 1309 and 1310 on the ground that water was not let down in proper time and that the supply was inadequate for raising a second crop;

(ii) that the lands under the project be registered as single-crop lands;

(iii) that further sales of waste lands be stopped and that the Collector of Madura be directed not to confirm sales already effected; and

(iv) that, if the Government are of opinion that the sales should not be stopped, the lands may be sold as single-crop lands.

2. The Government have ascertained that in faslis 1309 and 1310 there was an adequate supply of water for two crops and are therefore unable to comply with the petitioners' first request.

3. The Government carefully considered so lately as 1899 the classification of the waste lands as double crop. The Government then saw no sufficient reason to class the lands as single crop, but in view of the difficulties against which the purchasers of the lands had at the outset to contend sanctioned, as a concession, the remission of part of the double-crop charge for the first three years in which an irrigated crop was cultivated. The Government have again examined the matter, but consider that no further concessions are called for in this respect.

4. With reference to the request of the memorialists that further sales of waste lands should be stopped, or that the lands, if sold, should be sold as single-crop lands, they will be informed that the Government have already decided that no block of land should be sold until the means of irrigation have been provided so far as it rests with the Government to provide them; and, to this end, have directed that, before the issue of any public notice of sale, the villages to which water could most readily be supplied should be carefully determined.

5. The petitioners also complain of difficulties in obtaining manure for their lands and of the saline character of the soil in some localities. These complaints have a considerable basis of truth. The remedies, however, lie largely in the care and labour of the ryots themselves. To assist their endeavours the Government have granted permission to the ryots to grow green manure on their wet lands for five years free of charge for water; and have further allowed the utilization of certain waste lands for the purpose of growing such manure for limited periods on payment of "dry" assessment only. The Government have also sanctioned certain experiments with the object of discovering the most economical methods of improving saline soils.

6. The Government regret to observe that there has been inordinate delay, of which no explanation is offered, in submitting the report called for on the memorials.

(True Extract.)

(Signed) G. S. FORBES,
Secretary to Government.

To the Memorialists, through the Collector of Madura
(paragraphs 1 to 5 of order only).
,, the Board of Revenue (Revenue Settlement,
Land Records and Agriculture).

Copy to the Board of Revenue (Land Revenue).
,, the Public Works Department (Irrigation Branch).

Forwarded to the Public Works Department (Irrigation Bra[nch]

(By Order.)

C. Ratnavelu Mudr.
Registrar.

Exd. P. Seetharam.

60 Copies.